

Appendix IV

Flexible Pavement Design Worksheet for New Subdivision Streets

This sheet is intended for use and submission in conjunction with VDOT's Secondary Street Acceptance Requirements

County	LOUDOUN	Date:	8-12-09
Subdivision	FAIRHAVEN		
Street Name	WEATHERLY		
Design Engineer	ABBAS A. JAFARI	Phone:	703-737-8184

AADT Projected traffic for the street segment considered, as defined in the Subdivision Street Requirements.

CBR_D Design CBR = Average of CBR_T x 2/3 and modified only as discussed in the Pavement Design Guide.

CBR_T CBR value of the subgrade sample, taken and tested as specified in the Pavement Design Guide

DME VDOT District Materials Engineer

EPT Equivalent projected traffic

HCV Number of Heavy Commercial Vehicles (e.g. trucks, buses, etc., with 2 or more axles and 6 or more tires).

%HCV Percentage of the total traffic volume composed of Heavy Commercial Vehicles.

RF Resiliency Factor = Relative value of the subgrade soil's ability to withstand repeated loading.

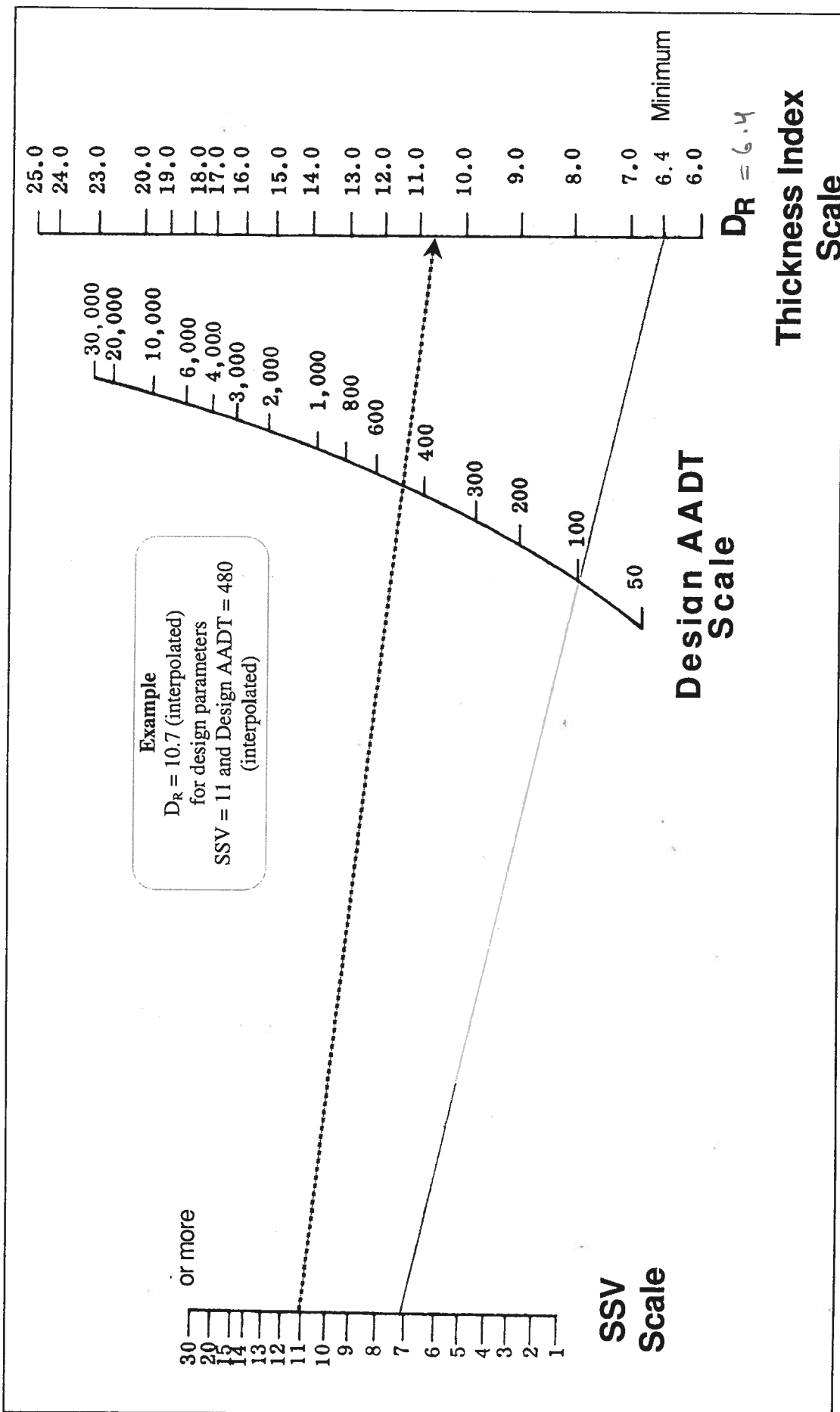
SSV Soil support value of subgrade (SSV = CBR_D x RF)

D_P Thickness index of proposed pavement design computed by the Conventional Pavement Design Method

D_R Thickness index required, based on Design AADT and SSV, determined by Appendix II.

Step 1: Determine Design AADT		Step 2: Determine Design Values CBR, RF, and SSV																											
AADT $\%HCV = 100 (HCV / AADT)$ or $EPT = 20 \times HCV$ Note: For $\%HCV \leq 5\%$, use AADT		<table border="1"> <thead> <tr> <th>Sample No.</th> <th>CBR_T</th> <th colspan="2">Resiliency Factor (RF)</th> </tr> <tr> <th></th> <th></th> <th>Source</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td>Table 1</td> <td></td> </tr> <tr> <td>2</td> <td>5.3</td> <td>Appendix I</td> <td>2.0</td> </tr> <tr> <td>3</td> <td>5.4</td> <td>DME approved RF</td> <td></td> </tr> <tr> <td colspan="4">For preliminary designs, use the lowest RF value in the equation</td> </tr> </tbody> </table>				Sample No.	CBR _T	Resiliency Factor (RF)				Source	Value	1		Table 1		2	5.3	Appendix I	2.0	3	5.4	DME approved RF		For preliminary designs, use the lowest RF value in the equation			
Sample No.	CBR _T	Resiliency Factor (RF)																											
		Source	Value																										
1		Table 1																											
2	5.3	Appendix I	2.0																										
3	5.4	DME approved RF																											
For preliminary designs, use the lowest RF value in the equation																													
Design AADT Use greater of AADT or EPT		<table border="1"> <tr> <td>CBR_D</td> <td>x</td> <td>RF</td> <td>=</td> <td>SSV</td> </tr> <tr> <td>(3.57)</td> <td>x</td> <td>(2.0)</td> <td>=</td> <td>7.14</td> </tr> </table>				CBR _D	x	RF	=	SSV	(3.57)	x	(2.0)	=	7.14														
CBR _D	x	RF	=	SSV																									
(3.57)	x	(2.0)	=	7.14																									
Step 3: Pavement Design (Check appropriate box and show proposed pavement design below.)																													
<input type="checkbox"/> (A) Limited to Design AADT ≤ 400 - Show pavement material notations and thickness from Appendix IV Tables A and B.																													
<input type="checkbox"/> (B) Show pavement section as developed in the Pavement Design Guide. (See Appendix III for material notations and thickness equivalency values (a)).																													
D _R = 6.4 from Appendix II																													
Description of Proposed Pavement Section																													
Material Notation		Thickness, h	a	(a x h)																									
Surface	SM-9.5 A	1.5	1.67	2.50																									
Base	1M-19.0	2.5	1.67	4.2																									
Subbase	21A	6.0	0.60	3.6																									
D _P must equal or exceed the value of D _R . D _P = $\Sigma(a \times h)$ = 10.3																													

$D_P > D_R$
 $10.3 > 6.4$
 $\therefore \checkmark OK$



Please refer to Appendices II and V for the application of this diagram in the design of pavement.